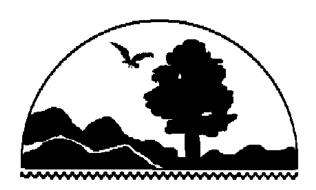
# UNDERGROUND STORAGE TANK SYSTEM SITE CHECK OUTLINE



NATURAL RESOURCES AND ENVIRONMENTAL
PROTECTION CABINET
DIVISION OF WASTE MANAGEMENT
UNDERGROUND STORAGE TANK BRANCH
14 REILLY ROAD
FRANKFORT, KENTUCKY 40601
(502) 564-6716
(800) 928-4273

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#### INTRODUCTION

Pursuant to Kentucky Administrative Regulations (KAR) Title 401, 42:050 and 42:060, owners and operators shall perform a site check if a release occurs, or is suspected to have occurred, or as directed by the Cabinet that will determine the presence of contamination where it is most likely to have occurred at an underground storage tank (UST) system facility.

The Cabinet shall require a site investigation if contamination levels exceed those outlined in 401 KAR 42:080 for regulated petroleum underground storage tank (UST) system(s) or if contamination levels exceed those outlined in 401 KAR 42:060 or 42:070 for regulated non-petroleum UST systems. Refer to 401 KAR 42:011 for UST system(s) excluded from this outline.

For definitions of terms used within this outline, refer to 401 KAR 42:005.

This outline provides the **minimum** requirements for a site check report. Some sites have unique features and may require additional information.

The completed site check report shall document the presence or absence of contamination, and shall be submitted to the UST Branch of the Division of Waste Management within thirty (30) days from the date of the suspected release or request from the Cabinet.

The site check report, including the site check report checklist, shall be completed and signed by a Professional Engineer (P.E.) registered with the Kentucky Board of Registration for Professional Engineers and Land Surveyors, or a Professional Geologist (P.G.) registered with the Kentucky Board of Registration for Professional Geologists.

#### 1.0 OVERVIEW/CONCLUSIONS

- 1.1 Provide a detailed description of the incident that initiated the site check.
- 1.2 Provide a summary of the results of the field investigations.
- 1.3 Provide conclusions drawn from the field investigations and recommendations for additional actions if necessary.

#### 2.0 SITE IDENTIFICATION AND LOCATION

- 2.1 Provide the site name, location, and the UST facility identification number.
- 2.2 Provide the applicable section of a U.S. Geological Survey (USGS) topographic map depicting the location of the site. The map shall also indicate the surrounding properties and the nearest town, city, or community. Provide the USGS topographic quadrangle name in which the facility is located.
- 2.3 Provide a detailed facility specific map. The facility map shall illustrate tank and piping locations, all sampling locations, depth of all tank pits, property boundaries, topography, adjacent properties, and any other pertinent features of the facility. The map shall also include all underground utility trenches (to scale, indicating the type of service and depth of each trench). The map shall be to scale and include a north arrow and legend.
- 2.4 Provide the longitude and latitude for all tank pits located on the facility property.
- 2.5 Provide original site photographs with descriptive captions in the original Site Check Report submitted to the Cabinet. The use of color photocopies of the original photographs will be acceptable in any additional copies of the Site Check Report required to be submitted.

#### 3.0 SITE HISTORY

- 3.1 Provide the street address of the facility, the name of the nearest city, and the name of the county in which the site is located.
- 3.2 Indicate the name, address, and telephone number of the property owner.
- 3.3 Provide the name, address, and telephone number of the facility operator.
- 3.4 Summarize all commercial and private activities conducted at the site.

#### 4.0 UNDERGROUND STORAGE TANK HISTORY

- 4.1 Include a history of past and present underground storage tank and piping systems on the site. Information shall include tank size, past and present contents, installation dates, and construction materials of the tanks and piping.
- 4.2 Submit information on the nature and estimated quantity of the release.

#### 5.0 ABATEMENT MEASURES

5.1 Submit information indicating if free product is encountered or if fumes occur in nearby structures. Refer to the Underground Storage Tank System Release Response and Initial Abatement Requirements Outline for more information.

- 5.2 Provide a report of free phase product and vapor recovery efforts for the facility. Include information on the recovery rate and the amount of free product recovered. Identify where the recovered product was taken and the transporter of the material.
- 5.3 Include information on initial abatement measures undertaken.

#### 6.0 RELEASE DETECTION

- 6.1 Submit a copy of the most recent tank and line tightness test.
- 6.2 Submit a copy of the repair records for the previous twelve (12) months.
- 6.3 Submit a copy of the three (3) most recent months of release detection records which may include daily inventory control records reconciled with delivery invoices to show net loss or gain over the period or other methods of leak detection as required in 401 KAR 42:040.

#### 7.0 FIELD INVESTIGATIONS

- 7.1 Provide a site sketch indicating the locations of all soil borings and soil samples collected with their total depths in relation to the underground storage tanks and all piping. Soil samples shall be collected where contamination is most likely to be present. Contamination is most likely to be present, but is not limited to, the areas around the underground storage tank pit, the bottom of the underground storage tank pit, the distribution and vent piping, and the dispensers used to distribute, meter, or control the flow of regulated substances to and from the underground storage tank(s).
- 7.2 If the sampling procedure in Section 3.2 of the Underground Storage Tank System Closure Outline can not be followed, a written request shall be submitted to the Underground Storage Tank Branch outlining an alternative sampling plan. This alternative sampling plan shall be approved by the Underground Storage Tank Branch and the Regional Office shall be notified to schedule a field inspector to be on site to witness the alternative sampling. For soil sample collection requirements, refer to Section 3.2 of the Underground Storage Tank System Closure Outline.
- 7.3 Provide information on the depths of all borings or monitoring wells. In all cases each boring or monitoring well shall extend at least 0.91 meters (3 feet) below the bottom of each UST system on the site, unless the site is located in a carbonate bedrock area with potential subsurface solution channel flow. In cases where a carbonate bedrock area with potential subsurface solution channel flow is present, contact the Underground Storage Tank Branch for a site-specific determination on further advancement of borings and/or monitoring wells.
- 7.4 Submit information on hydrogeologically downgradient groundwater sampling if required as specified in Section 4.2 of the Underground Storage Tank System Closure Outline. The sample shall be taken in the hydrogeologically downgradient area most likely to be affected by a release from the UST system.
- 7.5 Submit results of any water samples collected and include information on the methods used to collect the water sample. Any existing monitoring wells shall be sampled. All water encountered during soil sampling shall also be sampled and analyzed. Water samples shall be collected from properly developed monitoring

wells, use of a direct-push device, or from a bore hole if the bore hole can be adequately purged to obtain a representative groundwater sample. Note that unless installed by a certified monitoring well driller in accordance with 401 KAR 6:310, piezometers shall not be used for the extraction of groundwater for any sampling purpose.

- 7.6 Provide information on the depth to groundwater and details on how the information was obtained. On all sites, the depth to groundwater shall be determined by installation of groundwater monitoring wells, installation of piezometers, use of a direct push device, or by verification of the depth to groundwater from published documentation.
- 7.7 Submit information on the proper abandonment of soil borings and/or monitoring wells. Soil borings shall be properly abandoned within forty-eight (48) hours after obtaining a sample. Open holes from direct-push sampling devices shall be properly abandoned immediately after obtaining a groundwater sample. Monitoring wells shall be properly abandoned within thirty (30) days of the date of determination that the well is unsuitable for use as a monitoring well or the receipt of a letter from the Cabinet stating that no further action is required at the site. Proper abandonment of soil borings, direct-push borings, and monitoring wells refers to being sealed with cement/bentonite or bentonite--bottom to top--in a manner to preventcommunication of surface water and groundwater through the well or boring and communication between two or more water-bearing zones through the well or boring.
- 7.8 All monitoring wells shall be drilled, constructed, altered, tagged, abandoned, and reported as per 401 KAR 6:310. Contact the Groundwater Branch of the Division of Water at (502) 564-3410, for more information regarding well driller certification.

#### 8.0 ANALYTICAL REQUIREMENTS

- 8.1 Chain of custody documentation shall be submitted, which indicates who has had possession of a sample, the time of possession, and where the sample has been from the time of collection until the laboratory accepts it. Chain of custody procedures shall be followed to ensure the validity of all samples. If the chain of custody is not maintained, for example, if a sample is left unattended, then the integrity of the sample is compromised and may be rejected by the Cabinet. The chain of custody shall be developed as indicated by US EPA SW-846 and shall be attached with all sample analyses submitted.
- 8.2 Submit the analytical results including the SW-846 method numbers, method detection limits, sample preservation, sampling equipment, decontamination procedures, sample containers, sample size, and sample holding times. Pursuant to 40 CFR 260.11, recognized methods, in accordance with US EPA Publication SW-846, shall be followed for sample collection, sample preservation, sampling equipment requirements, decontamination procedures, sample containers, sample sizes, and maximum sample holding times (see Table C). Samples shall be delivered to an appropriate materials testing laboratory for the required analyses (see Tables A and B). Analytical methods selected for determining compliance with the allowable levels specified in the Facility Classification Outline must be capable of accurately measuring the constituents at or below allowable levels. The date that the samples were collected and analyzed as well as all the US EPA SW-846 methods used to analyze the samples shall be indicated on the laboratory report. The laboratory

- report shall follow the US EPA SW-846 requirements. Note that samples shall be analyzed for all current or past substances contained in the UST systems at the site.
- 8.3 Provide a map indicating the level of concentration of each major contaminant constituent and the locations of the sampling points. Accurately indicate all sampling locations and concentrations. The map shall be drawn to scale and include a north arrow and legend.

### 9.0 SITE GEOLOGY AND HYDROGEOLOGY

- 9.1 Give a description of the local and regional geology and hydrogeology based upon information from current scientific publications.
- Provide a description of the site geology and hydrogeology based upon observations made during the installation of soil borings and drilling of monitoring wells.
- 9.3 Provide drilling logs depicting the total depth, detailed lithologic descriptions, and field screening results corresponding to depths measured. Drilling logs shall, at a minimum, include a detailed description of the thickness, color, texture, grain sorting, grain size, and grain shape of the materials encountered; a description of lenses or thin layers encountered; and the depth to water and elevation of the top of the well. Include any field observations such as odors and moisture changes.
- 9.4 Submit monitoring well record form #DEP 8043 for each monitoring well constructed.
- 9.5 Submit Kentucky UST Assessment Well Form #DEP 5033 for each well used to collect a one-time groundwater sample.

#### 10.0 WASTE HANDLING PROCEDURES

- 10.1 Provide information on the handling, storage, transportation, and disposal of any waste generated during the site check. Refer to section 6.0 of the Underground Storage Tanks Closure Outline for more information.
- 10.2 Provide disposal receipts, manifests or other documentation verifying proper disposal of any waste generated during the site check. Refer to Section 6.0 of the Underground Storage Tanks Closure Outline for more information.

#### 11.0 HEALTH AND SAFETY

Provide information on a site-specific health and safety plan.

#### 12.0 SUBMITTAL OF THE FINAL REPORT

The Site Check Report Checklist (pages 7-9) provides a synopsis of the information which shall be included or explained in the site check report. One (1) original and one (1) copy of the site check report and Site Check Report Checklist shall be submitted within thirty (30) days of the suspected or confirmed release. The facility identification number shall be clearly marked on the first page of each document.

## 13.0 ADDITIONAL INFORMATION OR SAMPLING

The Cabinet reserves the right to require additional information or sampling. The owner/operator will be contacted in writing if more information is required.

# SITE CHECK REPORT CHECKLIST

Site Name	County
Location	UST I.D. #
	item included in the site check report. Omitted items shall be addressed in the report's cover letter. The st shall be submitted with each copy of the final report in order to expedite review of the site check report.
Check Respon	nse
	1.0 Executive Summary
1.1 1.2 1.3	Provide a detailed description of the incident that initiated the site check.  Summarize the results of the field investigations.  Outline conclusions and additional actions.
	2.0 Site Identification and Location
2.1 2.2 2.3	List the site name, location, and the UST identification number.  Provide the applicable section of a USGS topographic map indicating the exact location of the site. The map shall be to scale with north arrow, legend, quadrangle name, etc.  Provide a detailed, site-specific map for the facility which is to scale and includes a north arrow, legend, etc.
2.4 2.5	List the longitude and latitude of the tank pit area(s). Submit site photographs with descriptions.
	3.0 Site History
3.1 3.2 3.3 3.4	List the site's street address, city, and county. Include the property owner's name, address, and telephone number. Provide the facility operator's name, address, and telephone number. Submit a summary of the commercial and private activities at the site.
	4.0 Underground Storage Tank History
4.1 4.2	Provide a history of the underground storage tank and piping systems on site (all tanks and piping past/present, age, size, contents, construction, etc.).  Submit data on the nature and estimated quantity of the release.
	5.0 Abatement Measures
5.1 5.2 5.3	Report if free phase product or fumes in nearby structures were encountered.  Provide a report detailing free phase product and vapor recovery efforts for the facility.  Submit information summarizing initial abatement activities.
	6.0 Release Detection
6.1 6.2 6.3	Provide a copy of the most recent tank and line tightness test.  Provide a copy of the repair records for the last twelve (12) months.  Provide leak detection records for three (3) months prior to the release.
	7.0 Field Investigations
7.1 7.2	Provide a site sketch indicating the locations of all soil borings and soil samples collected with their total depths in relation to the underground storage tanks and all piping.  Provide information and documentation of UST Branch approval on the use of an alternative sampling plan if necessary.

7.3	Provide information on the total depth of soil borings and monitoring wells. For sites within a carbonate bedrock area with potential subsurface solution channel flow, include documentation that the UST Branch					
7.4	was contacted prior to continuation of installation of wells.  Submit information on hydrogeologically downgradient groundwater samples, if required as specified in					
7.5	Section 4.2 of the Underground Storage Tank System Closure Outline.					
7.5	Submit results of any water samples collected and include information on the methods used to collect the water sample.					
7.6	Provide information on the depth to groundwater and details on how the information was obtained.					
7.7	Provide information on the proper abandonment of any soil borings or monitoring wells.					
7.8	Provide documentation that all monitoring wells were drilled, constructed, altered, tagged, abandoned, and reported as per 401 KAR 6:310.					
	8.0 Analytical Results					
8.1	Provide chain-of-custody records.					
8.2	Submit analytical results including the SW 846 method numbers, method detection limits, sample preservation, sampling equipment, decontamination procedures, sample containers, sample size, sample halding times, etc.					
8.3	holding times, etc.  Provide a map indicating the contaminant levels of each major constituent and the locations of the					
	sampling points.					
	9.0 Site Geology / Hydrogeology					
9.1	Describe the local and regional geology and hydrogeology based upon scientific publications.					
9.2	Describe the site's geology and hydrogeology based upon information from soil borings and monitoring					
9.3	well drilling.  Provide drilling logs depicting the total depth, lithologies, and field screening results.					
9.4	Submit Monitoring Well Record Form # DEP 8043 or Kentucky UST Assessment Well Form #DEP 5033 for wells used to collect a one-time groundwater sample. Indicate the depth and length of the screen, blank casing, filter pack bentonite seal, grout seal, as well as a discussion on the integrity of the wells, etc.					
	casing, filter pack bentoffice sear, grout sear, as well as a discussion on the integrity of the wells, etc.					
	10.0 Waste Handling Procedures					
10.1 10.2	Give a summary of the handling, storage, and disposal of waste generated during the investigation. Provide disposal receipts, manifests, or other documentation of proper disposal of waste generated during the site check.					
	11.0 Health and Safety					
11.0	Note an adherence to a site-specific health and safety plan.					
	12.0 Submittal of the Final Report					
12.0	Provide one (1) original and one (1) copy of the site check report including this checklist. The facility identification number (I.D.#) shall be written on the front page of every document submitted.					
	13.0 Additional Information or Sampling					
13.0	Provide information on any additional information or sampling as required by the Cabinet.					

#### **CERTIFICATION OF SITE CHECK REPORT**

Under the requirements of KRS Chapters 322 and 322A, this Site Check Report Checklist shall be completed and signed by a Professional Engineer (P.E.) registered with the Kentucky Board of Registration for Professional Engineers and Land Surveyors, or a Professional Geologist (P.G.) registered with the Kentucky Board of Registration for Professional Geologists.

Signature			
Date			
Name and Title (Typed or Pr			
Registration Number, Date a	ind Seal		
The undersigned, fi familiar with the informatio inquiry of those individual information is true, accura 224.99-010 provides for pe	n submitted in this and s responsible for obta ite and complete. Th	all attached documents ining the information, e undersigned further a	I believe the submitted
Company Name			
Name and Title of Individual Signature Appears Below			
Signature*			
Date of Signature			
Subscribed and sworn to be	fore me by		
This the	Day of		, 19
Notary Public			
My Commission Expires			
Location of Commission			

<sup>\*</sup>NOTE: If the individual signing this is someone other than the president or secretary of a corporation, attach a notarized copy of power of attorney, or resolution of the board of directors which grants the individual the legal authority to represent the company. (Does not apply to a single proprietorship or partnership.)

Table A

Analytical Requirements for Soil Samples

Product stored in UST System	Required Acceptable Analysis Method		Maximum Acceptable Reporting Limit	
Gasoline, Kerosene, or Jet Fuel	втех	Method 5030 in conjunction with SW-846 8240, 8260, 8020, or 8021	E: < 0.9	ppm ppm ppm ppm
Diesel or regulated Heating Oil	РАН	Method 3540 or 3550 in conjunction with SW-846 8100, 8270, or 8310	B(a)A: < 0.15 c PAH: < 0.3 n PAH: < 3.0	ppm ppm ppm ppm ppm
Waste Oil	РАН	Method 3540 or 3550 in conjunction with SW-846 8100, 8270, or 8310	B(a)A < 0.15 c PAH: < 0.3 n PAH: < 3.0	
	Total Lead	SW-846 7420, 7421, or 6010	< 50 ppm or less than established background	
New Oil	РАН	Method 3540 or 3550 in conjunction with SW-846 8100, 8270, or 8310	B(a)A: < 0.15 c PAH: < 0.3 n PAH: < 3.0	ppm ppm ppm ppm ppm
Other Petroleum or Non-Petroleum	Contact the UST Branch			

BTEX: Benzene, Toluene, Ethylbenzene, and Xylene (total)

PAH: Polynuclear Aromatic Hydrocarbons
Ch: Allowable level individually for Chrysene

B(a)A: Allowable level individually for Benzo(a)anthracene

c PAH: Maximum Acceptable Reporting Limit Individually for Benzo(a)pyrene,

Benzo(b)fluoranthene, Benzo(k)fluoranthene,

Dibenzo(a,h)anthracene, and Indeno(1,2,3-cd)pyrene

n PAH: Maximum Acceptable Reporting Limit Individually for Acenaphthene, Acenaphthylene,

Anthracene, Benzo(ghi)perylene, Fluoranthene, Fluorene, Phenanthrene and Pyrene

NAP: Naphthalene

ppm: part per million (mg/kg)

Table B

Analytical Requirements for Water Samples

Product stored in UST System	Required Analysis	Acceptable Method	Maximum Acceptable Reporting Limit		
Gasoline, Kerosene, or Jet Fuel	втех	Method 5030 in conjunction with SW-846 8240, 8260, 8020, or 8021	B: < 0.005 ppm T: < 1.0 ppm E: < 0.7 ppm X: < 10.0 ppm		
Diesel or regulated Heating Oil	c PAH n PAH NAP	Method 3510 or 3520 in conjunction with SW-846 8100, 8270, or 8310	c PAH: < 0.005 ppm n PAH: < 3.0 ppm NAP: < 0.3 ppm		
Waste Oil	c PAH n PAH NAP Total Lead	Method 3510 or 3520 in conjunction with SW-846 8100, 8270, 8310 SW-846 7420, 7421, or 6010	c PAH: < 0.005 ppm n PAH: < 3.0 ppm NAP: < 0.3 ppm < 0.015 ppm or less than established background		
New Oil	c PAH n PAH NAP	Method 3510 or 3520 in conjunction with SW-846 8100, 8270, 8310	c PAH: < 0.005 ppm n PAH: < 3.0 ppm NAP: < 0.3 ppm		
Other Petroleum or Non-Petroleum	Contact the UST Branch				

BTEX: Benzene, Toluene, Ethylbenzene, and Xylene (total)

PAH: Polynuclear Aromatic Hydrocarbons

c PAH: Maximum Acceptable Reporting Limit Individually for Benzo(a)pyrene,

Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene,

Dibenzo(a,h)anthracene, and Indeno(1,2,3-cd)pyrene

n PAH: Maximum Acceptable Reporting Limit Individually for Acenaphthene, Acenaphthylene,

Anthracene, Benzo(ghi)perylene, Fluoranthene, Fluorene, Phenanthrene, and Pyrene

NAP: Naphthalene

ppm: part per million (mg/l)

Table C

Appropriate Containers, Sample Sizes,
Preservation Techniques and Maximum Holding Times\*

Parameter	Container Type	Sample Size	Preservation Method	Holding Times (Maximum)
Volatile Organics for Soil (BTEX)	Wide-mouth glass w/ Teflon- lined cap	120 ml or 4 oz.	Cool to 4°C	14 days
Volatile Organics for Water (BTEX)	Two (2) clear glass w/ Teflon-lined cap (VOA)	40 ml or 1 oz.	Add four drops of HCl to ea., Cool to 4°C	14 days
Polynuclear Aromatic Hydrocarbons for Soil (PAH)	Wide-mouth glass w/ Teflon-lined cap	250 ml or 8 oz.	Cool to 4°C	14 days until lab extraction 40 days after lab extraction
Polynuclear Aromatic Hydrocarbons for Water (PAH)	Amber glass w/Teflon-lined cap	1 liter	Cool to 4°C	7 days until lab extraction 40 days after lab extraction
Total Lead for Soil	Wide-mouth glass w/ Teflon-lined cap	500 ml or 16 oz.	Cool to 4°C	180 days
Total Lead for Water	Plastic or glass	500 ml or 16 oz.	Add HNO3 until pH is less than 2, cool to 4°C	180 days
Volatile Organics for Sludge (TCLP)	Wide-mouth glass w/ Teflon-lined cap	120 ml or 4 oz.	Cool to 4°C	14 days until lab extraction 14 days after lab extraction
Acid/Base/Neutral for Sludge (TCLP)	Wide-mouth glass w/ Teflon-lined cap	120 ml or 4 oz.	Cool to 4°C	14 days (hold) 7 days until lab extraction 40 days after lab extraction
Metals for Sludge (TCLP)	Wide-mouth glass w/ Teflon-lined cap	500 ml or 16 oz.	Cool to 4°C	180 days until lab extraction 180 days after lab extraction
Mercury for Sludge (TCLP)	Wide-mouth glass w/ Teflon-lined cap	500 ml or 16 oz.	Cool to 4°C	28 days until lab extraction 28 days after lab extraction

<sup>\*</sup> FOR FURTHER INFORMATION REFER TO US EPA SW-846 PUBLICATION.